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A 4-day training project for 51 music education professors was designed to increase their orientation toward systematic research, to improve their competence to train doctoral candidates as systematic researchers, and to improve their own competency in conducting research. Opportunities for small-group activities were interspersed with large-group lectures on research design and statistical anslysis. Pre- and posttest results indicated that specific competencies in planning, conducting, and analyzing experiments had been improved. Participant questionnaire evaluations registered positive reactions to content and presentation, encouraging he staff to conduct similar sessions in the future. Appended are publicity materials, a list of participants and staff, table of contents of the instructional materials bok designed for use in the program, the pre- and posttest Term Familarity Test wh statistical analysis of the results, and the trainee evaluation questionnaire. (JS)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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BR-8-8021
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FINAL REPORT

Project No. 8-8021
PA-24
Contract No. OEG-3-8-060021-0005

SPECIAL TRAINING PROJECT IN RESEARCH

IN ADULT EDUCATION

May 1968

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

FINAL REPORT

Project No. 8-8021

Contract No. OEC-3-8-080021-0005

SPECIAL TRAINING PROJECT IN RESEARCH IN MUSIC EDUCATION

James C. Carlsen
Project Director

Robert G. Petzold
Associate Project Director

Music Education Research Council
Music Educators National Conference

Seattle, Washington

May 1968

The project reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

SP001535

Introduction

The traditional graduate programs in music education have been effective in the preparation of music educators for a variety of roles: music teacher in elementary and secondary schools, conductor of performing groups in schools and colleges, college teacher of music education courses and supervisor of student teaching in music, and supervisor and administrator of music in schools and colleges. A part of these graduate programs has been oriented toward research, but this emphasis has been a minor one with the major emphasis upon preparation for teaching, performance, and service roles.

An increased need for systematic research in music education has resulted in a growing demand for qualified researchers in music education which is not being met by these graduate programs. As one approach to meet this demand, fifty-one key music education professors across the nation participated in a Special Training Project in Research in Music Education in Seattle, W shington, March 11-14, 1968, prior to the 1968 Biennial meeting of the Music Educators National Conference. The intent of the Project was to increase these professors orientation toward systematic research, to improve their competence to train doctoral candidates as systematic researchers, and to improve their own competency in conducting research.

The objective of the training project was to improve the research skills of the participants in designing, conducting, and analyzing controlled variable-manipulating experiments in an educational context. Special attention was devoted to experiments applicable to music teaching situations in schools and colleges. Specific objectives for the participants included the development of the following abilities:

1. Specify appropriate independent and dependent variables for an experimental study, and state the specific relationships to be investigated in the study.

2. Demonstrate a functional understanding of the basic principles of experimental design, including control, randomization, internal and external validity, planned comparisons, ex post facto analyses, and so forth.

3. Distinguish between valid and invalid statements of inference about experimental variables when given descriptions of the variables, procedures, and data.

4. Evaluate proposed experimental procedures in terms of methodological adequacy and select the most valid and practical experimental design for investigating the specified relationships.

5. Demonstrate a functional understanding of the most useful methods of statistical analysis of data derived from comparative experimentation.

Dr. Jason Millman, Associate Professor and Director, Research Training Program for Educational Research Methodologists, Cornell University, and Dr. Thomas Maguire, Assistant Professor of Educational Psychology, University of Alberta were the instructors for the four-day training session.

Description of the Program

The Special Training Project in Research in Music Education was held at the Sheraton Motor Inn, Seattle, Washington. All sessions were held in a large room equipped with speaker's platform, blackboards, and public address system. Trainees were seated in groups of four at tables facing the speaker's platform which permitted a large-group lecture situation and small-group work opportunities.

Each of the four days was divided into four sessions: two in the morning and two in the afternoon. These were essentially large group lectures with the two instructors alternating in the lecturer role. Frequent opportunities for small-group work were interspersed with the lectures.

The topics for the training sessions fell into two categories: research design and statistical analysis. Beginning with a study of research design, the first two days covered elementary concepts, e.g., types of variables, randomization, etc.; internal validity; external validity; and quasi-designs. A basic reference supplied each of the participants was a copy of the Campbell and Stanley EXPERIMENTAL AND QUASI-EXPERIMENTAL DESIGNS FOR RESEARCH (Rand-McNally, 1966).

The third and fourth day of the training sessions focused upon statistical analysis, covering such elementary concepts as null hypothesis, statistical significance, hypothesis testing, etc.; analysis of variance and assumptions of normality and equal variance, uncorrelated repeated measures, and independent observations related to analysis of variance; analysis of co-variance; and multiple comparisons.

During the four days of training, seven quizzes were given the participants. These tests were not so much mastery tests as they were diagnostic ones. They included:

1. Elementary Concepts of Design and Sources of Internal Invalidity
2. Interactions
3. Sources of External Invalidity
4. Hypothesis Testing
5. Analysis of Variance
6. Violating NOVA Assumptions
7. Covariance and Multiple Comparisons

Each participant received a prepared book of instructional materials (see Appendix E for Table of Contents) which served as the guide for instruction. Lectures, small group discussions, and trainee-instructor interaction sequentially followed these materials.

Although no sessions were formally scheduled for the evenings, the instructors made themselves available the first three evenings for individual consulting, small group discussions, and review sessions for participants desiring additional work.

Evaluation of the Program

In the opinion of the Music Education Research Council members on the staff of the Project, the four-day training session was one of the most important steps undertaken by the council to improve the role of systematic research in the field of music education. The participants, nearly all of whom were doctoral advisers at major educational institutions across the country, came together with disparate abilities in and attitudes toward experimental research. These 51 men and women worked diligently (absenteeism of less than 20 man-sessions out of a total of 816 man-sessions), evidencing a high interest and enthusiasm throughout the entire 16 sessions of the four days. In addition to the daily sessions, 35 of the 51 participants attended the optional evening sessions generously provided by the two instructors.

Objective results of such a training session can best be observed in the quality of doctoral dissertation which a participant will subsequently supervise or in the direct research activity in which he engaged. Less objective but perhaps not less meaningful results are obtained from the verbal reactions of participants during the ongoing sessions, from the estimations of participant attitude and from post-session reactions. These kinds of information have been highly positive, providing the Project staff and the Music Education Research Council with an optimistic view toward conducting similar sessions in the future.

No enterprise of this kind is possible without a certain amount of circumstances and events occurring which prevent the program from being totally effective. In order to improve future ventures it is important to identify both weaknesses and strengths of this Special Training Project in Experimental Design.

The criteria used for selecting participants (see Appendix C) permitted the acceptance of a highly heterogeneous group in terms of research and statistical background.[1] As a result, some persons were selected who indicated having difficulty studying the statistical materials presented the final two days of the session. Selection criteria for future Research Training Projects in Experimental Design in Music Education should take into consideration the previous training and experience in research methodology and statistics (both quantitatively and qualitatively) in order to achieve more homogeneous grouping, even if this were to mean conducting two separate sessions: one for advanced research training and another for inexperienced systematic researchers.

Although the size of the group was approximately that desired, the selection had to be made from too few applicants. This was due in part to the short period of time available between the date of notification of contract award and the date necessary for final selection. Since only applications were

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[1] Members of the Participant Selection Committee were Dr. Paul Lehman, Music Education Research Council Chairman and Chairman of the Selection Committee, Dr. Robert Petzold, Associate Project Director, and Dr. James Carlsen, Project Director.

invited from doctoral degree granting institutions and from persons conducting music education research under grants from USOE, more time would have permitted better publicity and certainly more applications from which to make the selection. Several inquiries arrived after the deadline. It is not possible to know how many other inquiries might have been received had more time been available.

On the basis of session attendance, it would appear that both the length of the Training Project and the daily schedule were satisfactory. Having the sessions in the hotel where the participants were staying eliminated tardiness and absenteeism. This was aided in part due to the fact that the hotel was isolated from the mainstream of activities in Seattle, thus reducing distracting influences. Future planning for similar projects might bear this in mind.

While the length of the Project appeared to be about right, there were some who indicated that a shorter afternoon session, with scheduled evening sessions instead, might have provided a better daily schedule. Some had not planned for such a concentrated working session and became fatigued. Whether such a modification would indeed be an improvement or not is difficult to determine apart from some experimental examination.

What might appear to be a weakness of the Project was the extensiveness of the instructional objectives in relationship to both the limited research background of some of the participants and the relatively short amount of time available to cover all points. There were a number of comments and suggestions which indicated that some participants were trying to accomplish in four days what should be carried on at their home institutions over a one or two-year period involving self-study, auditing courses, and seeking qualified assistance from experts.

Nonetheless, reactions from those who considered their prerequisites deficient indicated a strong positive attitude toward the sessions and toward the probable effect of the sessions upon their subsequent research and doctoral advising. Several of these persons stated an intent to pursue a follow-up program in systematic research training for themselves when they return to their home institutions. The seeming weakness of a too-extensive set of instructional objectives may well prove to be a strength in that it provided participants an opportunity to view in both breadth and depth the scope of systematic research and to evaluate their own limitations within this scope. If such an awareness motivates these professors to seek further research training, this would be a valuable outcome of the Project.

It would be presumptuous to suggest that the five objectives (see above) could be fully realized in four days. A study of the results of the seven quizzes (see Appendix G), of the pre and post-test results of the Term Familiarity check list (see Appendix F), and a review of reactive comments of several of the participants would indicate that specific competencies in planning, conducting, and analyzing experiments had been improved. The following are illustrative of some of the evaluations made by the participants themselves:

> ...I have already been able to utilize some of the training received with some students beginning to prepare dissertation proposals.
>
> ...I gained much. It will take a while to digest.
>
> ...the benefits can be completely assessed only in the future.
>
> ...at a meeting called to discuss a grad student's research design . . . we were able to suggest a possible improvement through the use of "cross-lagged panel correlations. . ."

The participants were given an opportunity to evaluate various aspects of the Training Project with the Participant Evaluation Form (see Appendix H). The results of analysis of these forms indicate that participants were highly pleased with content and presentation.

Probably the major strength of the Training Project was the instructional staff and the high degree of enthusiasm they engendered in the participants to improve their research skills. The two instructors had prepared carefully, including the development of approximately 160 pages of instructional material which was assembled into a book for each participant. Their presentations and lectures were cogent, to the point, and smoothly delivered. Both instructors were effective in utilizing small-group workshop techniques at appropriate times within the instructional framework. Their material was obviously well organized, and they moved at an effective pace through each of the sixteen separate sessions during the four days of the Project, and the quizzes and work exercises they employed were valuable and effective devices which facilitated learning.

Summary of Recommendations

1. Based upon the success of this Training Project, similar future research training projects should be developed. These should be operated at the division level as well as the national level of MENC. Suitable topics might include Techniques for Curriculum Evaluation, Techniques for Assessing Progress in Musical Learning, Systematic Research and the Music Administrator, an Advanced Program in Experimental Design and Analysis, and Writing Behavioral Objectives.

2. Selection criteria for future similar sessions should include an item to determine research and statistical background of the applicants. This criterion item should not be a personal-estimation item, but should obtain evidence of demonstrated competency.

3. If heterogeneous groups are assembled for future similar sessions (this should not necessarily be avoided, for a certain desirable cross-fertilization is possible in such groups), they should be divided into more homogeneous groupings for instruction in statistical analysis.

4. The United States Office of Education should be encouraged to make announcements of award of contracts as early as possible in order to provide ample time to effectively publicize programs, to obtain a sufficient number of applicants, and to make adequate selections of participants.

Program Reports

1. Publicity

Letters (see Appendix A) were mailed to deans and department heads of institutions which offered doctoral degrees in music education, asking them to encourage their doctoral advisers to submit applications for participation in the Research Training Project. Letters (see Appendix A) of invitation to participate were sent to these doctoral advisers, to persons in music education who had received earlier research awards from the USOE, and to members of the Music Education Council. Along with the invitation to participate, an application blank (see Appendix B) was included. Due to the shortness of time, no other formal announcement of the Project was made.

2. Application Summary

a. Approximate number of inquiries from prospective trainees ..... 51 *

b. Number of completed applications received..... 50 *

c. Number of first rank applications ..... 40 *

d. How many applicants were offered admission ..... 40 *

* This does not include the 15 members of the Music Education Research Council (not including Project staff) who were automatically invited to participate.

3. Trainee Summary

a. Number of trainees initially accepted in program (including MERC members) 55

Number of trainees enrolled at the beginning of program 51

Number of trainees who completed program 51

b. Categorization of trainees

(1) Number of trainees who principally are elementary or secondary public school teachers 0

(2) Number of trainees who principally are local public school administrators or supervisors 0

(3) Number of trainees from colleges or universities 51

4. Program Directors Attendance

a. What was the number of instructional days for the program? 4

b. What was the per cent of days the director was present? 100%

5. Financial Summary

	Budgeted	Expended or Committed
a. Trainee Support		
(1) Stipends	$ 3,300	$ 3,045
(2) Dependency Allowance	None	None
(3) Travel	None	None
b. Direct Costs		
(1) Personnel	5,069	4,219
(2) Supplies	410	275
(3) Equipment	None	None
(4) Travel and Per Diem	750	778
(5) Other	1,165	310
c. Indirect Costs	856	700
TOTAL	$11,550	$ 9,327

APPENDIX A

General Mailings:

a) Letter to administrators

b) Invitation to apply

c) Acceptance letter

d) Memo to participants

COPY

Music Educators National Conference

A DEPARTMENT OF THE NATIONAL EDUCATION ASSOCIATION
1201 Sixteenth Street N.W. WASHINGTON, D.C. 20036

December 29, 1967

Dear Sir:

The Music Education Research Council is planning to conduct a brief, intensive training program on the design of educational experiments in Seattle, Washington, March 11-14, 1968, immediately preceding the biennial convention of the Music Educators National Conference in that city. The program will bring together a number of selected college and university professors who are responsible for the training of doctoral candidates in music education or who are themselves conducting research in music education for four days of training in designing, conducting, and analyzing controlled variable-manipulating experiments in an educational context. The instruction will be given by two national figures experienced in conducting such training programs. It is anticipated that funds to support this program will be provided by the U.S. Office of Education. Final approval has not yet been given, but indications are that our request will be approved shortly.

We consider this a unique opportunity for key faculty members to bring themselves up-to-date in an important and timely aspect of research in music education. We hope that it will be possible for your institution to be represented. Participants will be selected largely upon the basis of their direct involvement with doctoral programs in music education. The number of students with whom the professor comes in contact will be an important criterion, though key professors in new programs and individuals conducting their own research are also eligible.

We apologize for the lateness of this notice and request your prompt cooperation. Would you please distribute the enclosed application blanks to not more than three faculty members at your institution who you believe might be interested in participating in this program, who would be able to attend, and who could benefit from the program in terms of increased effectiveness in guiding doctoral research. Do not hesitate to apply yourself if you are the logical person from your institution to participate.

We are aware that doctoral programs in music education are the responsibility of different administrative units on different campuses. For this reason we ask that if there is another administrator on your campus who might be able to identify the type of individual we are seeking, would you please consult with him or pass on this request to him. We hope that you will distribute these blanks as soon as possible because applications received at the MENC Headquarters later than January 22 cannot be considered.

More detailed information is provided in the covering letter attached to each application blank. We hope that one or more individuals from your institution will apply so that as many universities as possible throughout the nation will be represented. Current members of the Music Education Research Council (1966-1968) will be invited automatically. Thank you very much for your help.

Sincerely,

Paul Lehman

Paul Lehman, Chairman
MERC Participant Selection Committee
Music Educators National Conference
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

COPY

Music Educators National Conference

A DEPARTMENT OF THE NATIONAL EDUCATION ASSOCIATION
1201 Sixteenth Street N.W. WASHINGTON, D.C. 20036

December 29, 1967

Dear Colleague:

As a service to researchers in music education throughout the nation, the Music Education Research Council is planning to conduct a brief, intensive training program on the design of educational experiments in Seattle, Washington, March 11-14, 1968, immediately preceding the biennial convention of the Music Educators National Conference in that city. You have been suggested as a person who might wish to participate.

It is anticipated that funds to support this program will be provided by the U.S. Office of Education. Final approval has not yet been given, but indications are that our request will be approved shortly. Because of the planning time required, we are now accepting applications subject to final approval of the project by the Office of Education.

The program will bring together a number of selected college and university professors who are responsible for the training of doctoral candidates in music education or who are themselves conducting research in music education for four days of training in designing, conducting, and analyzing controllled variable-manipulating experiments in an educational context. The instructors will be Professor Jason Millman of Cornell University and Professor Thomas Maguire, formerly of the University of Illinois and now of the University of Alberta. Both are experienced in conducting similar programs for the American Educational Research Association and other organizations.

Participants will be selected largely on the basis of their direct involvement with doctoral programs in music education. The impact the participation of a given professor is likely to have on doctoral research will be an important criterion, though individuals conducting their own research are also eligible.

Although it is not possible to produce fully qualified design specialists in four days, it is possible to develop specific competencies in a number of aspects of planning, conducting, and analyzing experiments

in that time. Special attention will be devoted to experiments applicable to music teaching situations in the schools and colleges. Upon completion of the program the participant should be able to select the most appropriate design for a given problem, collect data in accordance with the design, and correctly analyze and interpret the results of the experiment. Specific behavioral objectives include the development of the following abilities in the participants:

1. Specify appropriate independent and dependent variables for an experimental study, and state the specific relationships to be investigated in the study.

2. Demonstrate a functional understanding of the basic principles of experimental design, including control, randomization, internal and external validity, planned comparisons, ex post facto analyses, and so forth.

3. Distinguish between valid and invalid statements of inference about experimental variables when given descriptions of the variables, procedures, and data.

4. Evaluate proposed experimental procedures in terms of methodological adequacy and select the most valid and practical experimental design for investigating the specified relationships.

5. Demonstrate a functional understanding of the most useful methods of statistical analysis of data derived from comparative experimentation.

Participants are scheduled to receive a per diem allowance of $15 for each of the four days (total of $60) from the grant pending before the U.S. Office of Education. There will be no charge for tuition. No funds for transportation will be provided because music educators presumably will be in Seattle for the MENC meeting. The sessions will be held at the Sheraton Motor Inn in Seattle. Single rooms will be available from $12.50 to $16 and twins from $16.50 to $20. With double occupancy it should be possible to keep one's expenses approximately within the expected per diem allowance.

If you believe that you would benefit from participation in such a program you are urged to complete the enclosed application blank and submit it so that it will arrive not later than January 22. The program is designed for persons who are not now as competent as they would like to be in experimental design and who need improved competence in order to provide guidance in this field for doctoral students or to conduct their own research. If you are already adequately competent in experimental design, please do not apply. Similarly, if you will not have significant opportunities to utilize the competence thus acquired, please do not apply.

We anticipate that there will be more applicants than can be accommodated. It may be impossible to accept more than one individual from a given institution. If you do not feel that you are the logical person on your campus to participate, please pass on this application to that person.

You will be notified not later than January 31 of the decision of the Participant Selection Committee. We regret that applications received after January 22 cannot be considered. If you have any questions you may address them to me or to the Project Director, Professor James C. Carlsen, School of Music, University of Washington, Seattle 98105.

Sincerely,

Paul Lehman

Paul Lehman, Chairman
Participant Selection Committee
Music Educators National Conference
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

C O P Y

MUSIC EDUCATION RESEARCH COUNCIL

Special Training Project in Experimental Design

Seattle, Washington

March 11-14, 1968

TO: Applicants selected to participate in the special training project.

FROM: James Carlsen, Project Director

It is my pleasure to inform you that you have been chosen to be invited to participate in the special training project in Experimental Design. The first session will begin early Monday morning, March 11 and will run until late afternoon, Thursday, March 14.

If for any reason you find it impossible to attend the entire four days of this training project, please telephone or write immediately to withdraw so that one of the several excellent alternates we had to turn down can be given your position. We will proceed to make reservations for you according to the information you provided us in your application unless we hear from you otherwise. Participants should plan to check into the Sheraton Motor Inn during the afternoon or evening of Sunday, March 10.

You will receive under separate cover a copy of the book Experimental and Quasi-Experimental Designs for Research by Donald P. Campbell and Julian C. Stanley, Rand-McNalley, 1966. This is reprint of Chapter 5 of the Handbook of Research on Teaching (N. L. Gage, editor). In order that all participants will share a general frame of reference it is recommended that you read the first 25 pages prior to attending the training session. In general the other material which you will need will consist of specially prepared instructional materials which will be handed out to you at the first training session Monday morning, March 11. You may wish to bring along a few reference works from your personal library (including an elementary statistics book) though the materials which you will receive at the first session will be reasonably self-sufficient. In any event do come prepared to work.

Professors Millman and Maguire are both expending a great deal of effort in the preparation of this training project to insure that it will be a highly profitable experience for you. I am pleased that you have indicated willingness to take this time in your busy schedule to share in this learning experience. We will look forward to working with you.

225 Music Building
University of Washington
Seattle, Washington 98105

Music Educators National Conference

A DEPARTMENT OF THE NATIONAL EDUCATION ASSOCIATION

1201 Sixteenth Street N.W. WASHINGTON, D.C. 20036

COPY

TO: MERC Training Session Participants

FROM: James Carlsen, Project Director

Here is a final memo before you start out for Seattle.

1. Session attendance . . .

   Jason Millman and Thomas Maguire have prepared the sessions and related materials in a sequence that requires a continuity of attendance for effective training to take place. In addition, a pre-test will be given at the first session on Monday morning, and a post-test at the final session Thursday afternoon, for which we must have data from each participant in order to evaluate training effectiveness. For this reason, all participants will be expected to attend all sessions.

2. Evening meetings . . .

   No sessions have been scheduled for the evenings, however, the instructors will be available on Monday, Tuesday, and Wednesday evenings to meet with individuals, small group discussions, or review sessions. It is expected that individuals or groups so interested will initiate these meetings.

3. Upon arrival . . .

   . . . at the Seattle-Tacoma Airport: Take the limousine to the Olympic Hotel Terminal in Seattle. From there, take a taxi to the Sheraton Motor Inn, 400 N.E. 45th.

   . . . at the train or bus depot: Take a taxi to the Sheraton Motor Inn, 400 N.E. 45th.

If for any reason, you will be unable to arrive Sunday evening, please notify the Sheraton directly. I hope you have a pleasant journey to Seattle.

James Carlsen
Project Director

APPENDIX B

Music Education Research Council

SPECIAL TRAINING PROJECT IN EXPERIMENTAL DESIGN

Seattle, Washington

March 11-14, 1968

Application Blank

Please answer all items completely

1. Name _____

2. Present position or title _____

3. Institution _____

4. Address _____

_____

5. Telephone _____

6. Age _____ 7. Sex _____

8. If selected, will you be able to attend the Special Training Program in Seattle, Washington, March 11-14, 1968, and do you agree to do so? _____

9. What doctoral degrees in music education are now offered by your institution?

_____

10. Give the approximate number of doctoral degrees in music education awarded by your institution in 1965 _____, 1966 _____, and 1967 _____.

11. Give the number of full-time or part-time doctoral students in music education for whom you currently serve as major advisor or committee chairman _____.

12. Give the number of full-time or part-time doctoral students in music education with whom you have significant contact although you are not the major advisor or committee chairman _____.

13. Considering all of your teaching and administrative responsibilities, what percentage of your time is spent in advising doctoral candidates or guiding doctoral research in music education? _____%

14. What percentage of your normal teaching and administrative load, if any, is devoted to research in music education and is so recognized by your administration? _____%

15. Approximately how many hours per week, if any, do you spend on research projects in music education not considered by your administration to compriise a portion of your normal teaching load? _____

16. Briefly describe any research projects you have recently completed or are currently underway (if sponsored research, indicate the sponsoring agency).

17. List your recent research-related publications.

18. List collegiate institutions attended for graduate work:

Institution	Dates	Degrees (Be certain to list earned doctorate if held)

19. List collegiate institutions in which you have taught:

Institution	Dates	Courses Taught

20. List collegiate courses taken in research methods, research design, and statistics.

Institution	Course Title	Date	Text

21. List courses you currently teach in which you believe your teaching would benefit from participation in this program.

Course Title	Current Text

22. The behavioral objectives of the program are given below. Mark each as it applies to you using the following code:

1. I am not certain just what is meant.
2. I understand what is meant but am unfamiliar with the appropriate techniques.
3. I have studied it and know the appropriate techniques but would not feel confident in utilizing them.
4. I can perform this task fairly well in simpler examples but am uncertain about advanced or complex applications.
5. I believe that I can do this correctly but would like a review.
6. I can do this well and believe that I could spend my time more efficiently on other matters.

_____1. Specify appropriate independent and dependent variables for an experimental study, and state the specific relationships to be investigated in the study.

_____2. Demonstrate a functional understanding of the basic principles of experimental design, including control, randomization, internal and external validity, planned comparisons, ex post facto analyses, and so forth.

_____3. Distinguish between valid and invalid statements of inference about experimental variables when given descriptions of the variables, procedures, and data.

_____4. Evaluate proposed experimental procedures in terms of methodological adequacy and select the most valid and practical experimental design for investigating the specified relationships.

_____5. Demonstrate a functional understanding of the most useful methods of statistical analysis of data derived from comparative experimentation.

23. Describe briefly any duties in your present employment other than those mentioned in questions 13, 14, and 21. Indicate any changes anticipated in 1968-69.

24. Write a brief statement in support of your application. Be honest rather than modest. Describe specifically what you personally are now unable to do that you would expect to be able to do or do better after participating in this program.

If your application is accepted and if you so request by checking the appropriate square below, the MERC will make a room reservation for you at the Sheraton Motor Inn. This reservation will be made for the four nights March 10, 11, 12, and 13 at the minimum rate available. You will receive a confirmation from the Sheraton. If you wish other arrangements, please make them directly with the Sheraton Motor Inn, 400 N.E. 45th Street, Seattle, Washington 98105, or with the hotel of your choice.

Single ($12.50 to $16) ☐

Twin ($16.50 to $20)
(Roommate to be assigned by MERC) ☐

Signature of applicant _____

In order to be considered this application must be received not later than January 22 by:

Paul Lehman, Chairman
MERC Participant Selection Committee
Music Educators National Conference
1201 Sixteenth Street, N.W.
Washington, D. C. 20036

APPENDIX C

Final Rating (circle one)	1 Definitely Not Accept	2 Probably Not Accept	3 Undecided	4 Accept If Possible	5 Definitely Accept

Name _____

Institution _____

Reasons for Acceptance:

Reasons for Rejection:

CRITERIA FOR SELECTION

1. The primary criterion for selection is the impact on research (particularly doctoral research) in music education that would be likely to result from the participation of the applicant insofar as this can be determined from the information supplied on the application blank.
2. Those faculty members who directly instruct or advise the largest numbers of doctoral candidates should receive first consideration. If more than one individual from a given institution applies, consider who would be most effective in disseminating these techniques. It is possible to select more than one person from the same institution if there is a large doctoral program or if the individuals share equally the responsibility for the program.
3. Individuals not holding major responsibilities for doctoral programs in music education are not eligible unless they are personally conducting significant research in music education.
4. Such persons conducting their own research and not affiliated with doctoral programs should be considered in terms of the likely benefit to the profession resulting from their work.
5. Geographical distribution should be considered to a certain extent.
6. Other factors being approximately equal, the younger applicant should be selected.
7. Persons without earned doctorates or equivalent experience and professional recognition are not eligible.
8. When you are uncertain, judge on the basis of likely impact on the profession.
9. The number of participants to be selected, excluding MENC members, is 40.

APPENDIX D

MUSIC EDUCATION RESEARCH COUNCIL
SPECIAL TRAINING PROJECT IN EXPERIMENTAL DESIGN
Seattle, Washington
March 11-14, 1968

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APPENDIX E

MERC Special Training Project
Contents of Instructional Materials Book

Preliminaries

Title page
Over-all schedule of times and places
Specific schedule of content
List of participants
Pretest-checklist of content terms
Bibliography

Design

Poem demonstration
Types of variables
Randomization demonstration
Expository paper on experimental design
Brief summary of sources of internal invalidity
Regression materials
Examples of research (internal invalidity)
Quiz Number 1
Interaction expository paper
Interaction problem set
Quiz Number 2
Bracht/Glass paper (condensed) on external invalidity
Example of problem which raises question of compromises between external and internal invalidity
Research problem for which a design is needed
Quasi-design handouts
Cross-lage design material
Problem in which critical source of invalidity is recognized and additional data needed--perhaps institutional cycle or related design
Quiz Number 3

Analysis

Simple expository papers on measures of central tendency, variability, and hypothesis testing
Quiz Number 4
ANOVA Reprint
ANOVA problem set
Quiz Number 5
Violations (normality, σ^2, disproportionality)
Repeated measures outline and problem
Experimental unit
Quiz Number 6
Covariance
Multiple comparison (expository paper and problems)
Quiz Number 7
Post-test checklist of content terms
Participant Evaluation Form

APPENDIX F_1

Term Familiarity List

The terms below represent a catch-as-catch can collection. They are not necessarily prerequisite for, or to be treated in the presession. We are simply interested in your degree of exposure to each. Mark each term using the code below:

0 Never heard of it
1 Heard of, but that's about all
2 Studied it but still don't know what it's all about
3 Feel I understand it well enough if I had to
4 I've used it, correctly I think
5 Know it so well it would be wasting my time to spend much more time on it

_____ Expected mean square
_____ Pooling sums of squares
_____ Fixed vs. random models
_____ Latin squares
_____ Mean
_____ Standard deviation
_____ Orthogonal contrasts
_____ Variance components
_____ Time-series
_____ Covariance analysis
_____ Interaction
_____ T-test
_____ Type III error
_____ Quasi-experiments
_____ Homogeneity of variance
_____ Cross-lag correlations
_____ Statistical regression
_____ Confounding
_____ Experimental units
_____ Random numbers
_____ Test of significance
_____ Concommitent observations
_____ Individual comparisons
_____ Skewness
_____ Assumptions in analysis of variance
_____ Randomized blocks
_____ Mixed model
_____ Repeated measures designs
_____ Institutional cycles designs
_____ Split plots
_____ Gamma distribution
_____ Chi square test
_____ Levels of factors
_____ A posteriori tests
_____ Blocking
_____ Biserial correlation
_____ Median
_____ Standard scores
_____ Error variance
_____ Disproportionality
_____ Normal distribution
_____ Within cell sums of squares
_____ Validity
_____ Treatment effect
_____ Power of a test
_____ Experimental mortality
_____ Additivity
_____ F distribution
_____ Matched groups
_____ Experimental design

APPENDIX F_2

MERC Special Training Project

TERM FAMILIARITY LIST RESULTS

FREQUENCIES

	PRE TEST					
	0	1	2	3	4	5
Expected Mean Square	8	20	6	12	3	2
Pooling Sums of Squares	14	8	10	11	7	1
Fixed vs. Random Models	5	12	8	18	6	2
Latin Squares	16	16	10	8	1	0
Mean	0	0	0	5	13	33
Standard Deviation	0	0	4	10	17	20
Orthogonal Contrasts	36	7	6	2	0	0
Variance Components	8	15	12	12	4	0
Time-series	14	13	8	11	5	0
Covariance Analysis	4	9	18	11	9	0
Interaction	4	8	14	8	14	3
t-test	1	8	12	8	12	10
Type III Error	28	17	2	4	0	0
Quasi-experiments	2	9	10	20	9	1
Homogeneity of Variance	9	9	10	8	12	3
Cross-lag Correlations	37	8	4	1	1	0
Statistical Regression	0	4	15	20	10	2
Confounding	18	7	3	14	8	1
Experimental Units	5	10	9	12	13	2
Random Numbers	0	1	4	12	17	17
Tests of Significance	0	3	8	14	13	13
Concommitent Observations	10	6	9	13	13	0

FREQUENCIES

	PRE TEST					
	0	1	2	3	4	5
Individual Comparisons	4	3	11	17	14	2
Skewness	2	2	4	14	14	15
Assumptions in Analysis of Variance	4	12	13	13	7	2
Randomized Blocks	9	10	10	17	5	0
Mixed Model	20	15	12	4	0	0
Repeated Measures Design	21	10	7	6	7	0
Institutional Cycles Design	35	8	5	3	0	0
Split Plots	38	7	3	3	0	0
Gamma Distribution	28	16	4	2	1	0
Chi Square Test	2	12	11	8	11	7
Levels of Factors	16	15	11	5	4	0
A posteriori Tests	17	13	9	8	3	1
Blocking	14	16	9	8	2	2
Biserial Correlation	21	7	9	10	4	0
Median	0	0	0	6	14	31
Standard Scores	0	1	1	16	16	17
Error Variance	5	6	18	12	10	0
Disproportionality	15	12	14	6	4	0
Normal Distribution	0	0	2	11	16	22
Within Cell Sums of Squares	14	4	13	5	10	5
Validity	0	0	1	13	23	14
Treatment Effect	14	5	11	6	13	2
Power of A Test	8	8	12	10	11	2
Experimental Mortality	6	5	6	14	12	8
Additivity	21	10	10	7	3	0
F distribution	14	8	7	9	12	1
Matched Groups	0	2	6	17	17	9
Experimental Design	2	0	11	12	22	4

APPENDIX F_2

MERC Special Training Project

TERM FAMILIARITY LIST RESULTS

FREQUENCIES

	POST TEST					
	0	1	2	3	4	5
Expected Mean Square	5	7	5	22	7	3
Pooling Sums of Squares	4	8	10	15	10	2
Fixed vs. Random Models	1	7	4	22	10	5
Latin Squares	3	13	14	13	5	1
Mean	5	0	0	0	0	9
Standard Deviation	0	0	2	6	10	31
Orthogonal Contrasts	0	1	16	23	9	0
Variance Components	0	3	6	24	14	2
Time-series	0	0	2	23	19	5
Covariance Analysis	0	1	14	24	9	1
Interaction	0	0	0	15	27	7
t-test	0	3	6	16	18	6
Type III Error	27	10	4	7	1	0
Quasi-experiments	0	0	3	24	16	6
Homogeneity of Variance	0	7	7	17	17	1
Cross-lag Correlations	2	3	9	27	6	2
Statistical Regression	0	1	4	22	18	4
Confounding	1	2	5	18	21	2
Experimental Units	1	2	5	17	16	8
Random Numbers	0	0	0	7	16	26
Tests of Significance	0	0	8	12	17	12
Concommitent Observations	4	5	15	11	10	4
Individual Comparisons	0	0	2	20	23	4
Skewness	1	0	1	8	17	22

FREQUENCIES

	POST TEST					
	0	1	2	3	4	5
Assumptions in Analysis of Variance	0	1	12	18	15	3
Randomized Blocks	0	1	4	17	23	4
Mixed Model	5	7	15	16	6	0
Repeated Measures Design	2	1	6	24	14	2
Institutional Cycles Design	26	7	9	6	0	1
Split Plots	19	16	7	6	1	0
Gamma Distribution	25	15	7	2	0	0
Chi Square Test	1	9	12	11	8	8
Levels of Factors	1	2	5	14	17	10
A posteriori Tests	9	8	9	10	10	3
Blocking	0	0	2	16	21	10
Biserial Correlation	11	11	13	9	4	1
Median	0	0	0	1	12	36
Standard Scores	0	2	0	8	17	22
Error Variance	0	2	7	19	18	3
Disproportionality	5	9	9	14	10	2
Normal Distribution	0	0	1	6	12	30
Within Cell Sums of Squares	0	2	5	15	19	8
Validity	0	0	2	13	18	16
Treatment Effect	0	2	1	13	22	11
Power of A Test	2	0	6	14	15	12
Experimental Mortality	0	0	3	8	14	24
Additivity	14	5	12	12	2	4
F distribution	0	5	10	16	12	6
Matched Groups	0	0	1	14	21	13
Experimental Design	0	0	4	18	20	7

APPENDIX F_2

MERC Special Training Project

TERM FAMILIARITY LIST RESULTS

PERCENTAGES

	PRE TEST					
	0	1	2	3	4	5
Expected Mean Squares	15.69	39.22	11.76	23.53	5.88	3.92
Pooling Sums of Square	27.45	15.69	19.61	21.57	13.73	1.96
Fixed vs. Random	9.80	23.53	15.69	35.29	11.76	3.92
Latin Squares	31.37	31.37	19.61	15.69	1.96	0.0
Mean	0.0	0.0	0.0	9.80	25.49	64.71
Standard Deviation	0.0	0.0	7.84	19.61	33.33	39.22
Orthogonal Contrasts	70.59	13.73	11.76	3.92	0.0	0.0
Variance Components	15.69	29.41	23.53	23.53	7.84	0.0
Time-Series	27.45	25.49	15.69	21.57	9.80	0.0
Covariance Analysis	7.84	17.65	35.29	21.57	17.65	0.0
Interaction	7.84	15.69	27.45	15.69	27.45	5.88
t-test	1.96	15.69	23.53	15.69	23.53	19.61
Type III Error	54.90	33.33	3.92	7.84	0.0	0.0
Quasi-Experiments	3.92	17.65	19.61	39.22	17.65	1.96
Homogeneity of Variance	17.65	17.65	19.61	15.69	23.53	5.88
Cross-Lag Correlations	72.55	15.69	7.84	1.96	1.96	0.0
Statistical Regression	0.0	7.84	29.41	39.22	19.61	3.92
Confcunding	35.29	13.73	5.88	27.45	15.69	1.96
Experimental Units	9.80	19.61	17.65	23.53	25.49	3.92
Random Numbers	0.0	1.96	7.84	23.53	33.33	33.33
Test of Significance	0.0	5.88	15.69	27.45	25.49	25.49
Concommitent Observation	19.61	11.76	17.65	25.49	25.49	0.0
Individual Comparison	7.84	5.88	21.57	33.33	27.45	3.92
Skewness	3.92	3.92	7.84	27.45	27.45	29.41

	PERCENTAGES					
			One Step			
	0	1	2	3	4	5
Assumptions in Analysis of Variance	7.84	23.53	25.49	25.49	13.73	3.92
Randomized Blocks	27.45	29.41	29.41	29.33	9.80	0.0
Mixed Model	29.82	29.43	23.53	7.84	0.0	0.0
Repeated Measures	41.18	29.41	13.73	13.76	13.73	0.0
Institutional Cycles	45.53	33.33	9.80	7.88	0.0	0.0
Split Plots	54.51	33.73	5.88	5.88	0.0	0.0
Cross Distribution	54.90	39.37	7.84	3.92	3.96	0.0
Chi Square Test	3.92	23.53	23.37	25.49	23.37	15.73
Levels of Factors	39.37	25.49	23.37	9.80	7.84	0.0
A priori Tests	35.33	25.49	27.45	25.49	5.88	3.96
Blocking	27.45	39.37	27.45	25.49	3.96	3.96
Biserial Correlation	41.18	33.73	27.45	29.41	7.84	0.0
Inference	0.0	0.0	0.0	13.76	43.14	43.14
Standard Scores	0.0	3.96	3.96	39.37	39.37	35.33
Error Variance	9.80	33.76	33.45	23.53	29.41	0.0
Heteroscedasticity	29.43	25.53	27.45	33.76	7.84	0.0
Normal Distribution	0.0	0.0	3.92	23.37	39.37	43.14
Within Cell Sums of Squares	27.45	7.84	25.49	9.80	29.41	9.80
Validity	0.0	0.0	3.96	25.49	43.14	27.45
Treatment Effect	27.45	9.80	23.37	33.76	25.49	3.96
Power of a Test	29.41	29.41	25.53	29.41	23.37	3.96
Experimental Mortality	33.76	9.80	33.76	27.45	25.53	29.41
Reliability	41.18	29.41	29.41	25.73	9.88	0.0
F Distribution	27.45	29.41	25.73	27.45	25.53	3.96
Matched Groups	0.0	3.96	33.76	39.33	39.33	27.45
Experimental Design	9.92	0.0	23.37	25.53	43.14	7.84

APPENDIX F

ABBC Special Training Project

TIBIA FRACTURE CASE RESULTS

PRINCIPALS

	Base Case					
	0	1	2	3	4	5
Expected Mean Squares	10,000	14,000	10,000	46,000	14,000	6,000
Pooling Sums of Squares	0,00	28,00	00,00	00,00	00,00	0,00
Fixed vs. Random	0,00	14,000	0,00	46,000	00,00	10,000
Error Squares	0,00	28,00	00,00	28,00	10,00	0,00
Mean	0,0	0,0	0,0	0,0	00,00	00,00
Standard Deviation	0,0	0,0	0,00	00,00	00,00	00,00
Heterogeneous Covariance	0,0	0,00	00,00	00,00	00,00	0,0
Variance Components	0,0	0,00	00,00	00,00	00,00	0,00
Time-Studies	0,0	0,0	0,00	00,00	00,00	00,00
Correlations Analysis	0,0	0,00	00,00	00,00	00,00	0,00
Interactions	0,0	0,0	0,0	00,00	00,00	00,00
Scheme	0,0	0,00	00,00	00,00	00,00	00,00
Type III Error	00,00	00,00	0,00	00,00	0,00	0,0
Least Significants	0,0	0,0	0,00	00,00	00,00	00,00
Homogeneity of Variance	0,0	00,00	00,00	00,00	00,00	0,00
Grand Total Correlations	0,00	0,00	00,00	00,00	00,00	0,00
Statistical Regression	0,0	0,00	0,00	00,00	00,00	0,00
Confounding	0,00	0,00	00,00	00,00	00,00	0,00
Experimental Units	0,00	0,00	00,00	00,00	00,00	00,00
Random Systems	0,0	0,0	0,0	00,00	00,00	00,00
Test of Significance	0,0	0,0	00,00	00,00	00,00	00,00
Experimental Observations	0,00	00,00	00,00	00,00	00,00	0,00
Statistical Regressions	0,0	0,0	0,00	00,00	00,00	0,00
Overview	0,00	0,0	0,00	00,00	00,00	00,00

Accomplishment in Analysis of Variance	0.0	0.04	29.49	36.73	30.1	6.12
Mentioned Books	0.0	0.04	0.16	36.09	46.4	8.16
Mixed Model	10.20	24.89	30.61	38.61	16.4	0.0
Repeated Measures	4.08	8.16	12.24	48.98	26.7	4.08
Instructional Cycles	12.24	24.89	16.37	18.24	0.	2.04
Split Plots	36.73	36.61	16.89	10.24	0.4	0.0
Power Distributions	22.45	30.61	16.89	8.16	0.	0.0
Chi Square Test	0.04	16.37	69.49	88.98	46.9	16.33
Levels of Variance	0.04	8.16	10.20	48.37	36.9	20.41
A priori Test	16.37	36.73	16.37	69.84	69.4	6.12
Blocking	0.0	0.0	8.16	38.69	46.4	20.41
Binomial Expansion	65.98	69.84	36.73	48.37	8.2	2.04
Abstract	100	100	100	0.498	198.49	73.47
Treatment Groups	0.0	8.16	0.0	46.29	36.69	44.90
Error Variance	0.0	8.16	24.49	58.78	36.73	8.16
Homogeneity	10.20	16.37	16.37	69.37	69.18	8.16
Power Distributions	0.0	0.0	8.16	16.84	36.69	63.26
Within Cell Sum of Squares	0.0	8.16	12.24	30.61	38.78	16.33
Validity	0.0	0.0	8.16	46.29	36.73	38.69
Treatment Effect	0.0	8.16	8.16	46.29	46.30	28.57
Sums of a Test	8.16	0.0	16.84	48.37	30.61	24.49
Experimental Mortality	0.0	0.0	8.16	18.24	48.37	16.36
Validity	48.37	10.20	36.69	36.98	8.16	8.16
F Distribution	0.0	10.20	30.61	38.69	36.69	16.84
Matched Groups	0.0	0.0	8.16	48.37	46.9	46.39
Experimental Design	0.0	0.0	8.16	36.73	46.9	14.69

APPENDIX G

MEMC Special Training Project

Results of Quizzes

Numerics indicates number correct.
Interpretation indicates number of persons attempting to answer the questions.

Quiz 1

1	40/52
2	34/52
3	not scored
4	47/52
5	46/52
6	25/52

Quiz 2

1. 26/33 could name assistance
   22/33 completed assistance
2. 41/33

Quiz 3

1	23/33
2	24/33
3	31/33
4	24/33
5	24/33

Quiz 4

1	25/32
2	21/32
3	24/32
4	29/32
5	not scored

Quiz 5

1	not scored
2	a. 12/32
	b. 28/32
	c. 26/32
	d. 2/32
	e. 14/32 will comment given 12/32 got 2 times comment

Quiz 6

1	26/26
2	not scored
3	13/26 knew answer 21/26 acceptable answer
4	4/26 will comment given 13/26 2 comment

Quiz 7

1	2/26 comment objective is available (a)
	2/26 comment objective is available (b)
	20/26 comment objective is available (c)
2a	17/26 will comment; 2/26 2 comment
2b	12/26
2c	17/26
2d	12/26

Appendix E

Music Education Research Council
Research Training Session
March 11-14, 1968

PARTICIPANT EVALUATION FORM

Directions: Please respond with a word, a phrase, or one or more sentences to as many of the following questions as you can. Your frank and honest evaluation can only benefit everyone concerned. Do not identify yourself by name unless you prefer to do so.

Environment and Facilities

1. a. To what extent did the relative unavailability of books and journals interfere with your attempts to master the content of this session?

b. To what extent did the instructional materials given to you improve matters?

2. a. Did you feel that you lacked a "place to work," either alone or in small groups?

b. Was the room where sessions were held satisfactory?

(1) What features were inadequate or not conducive to learning?

(2) What features were especially conducive to learning?

Scheduling and Organization

3. a. Was four days too long a period to leave your work for the purpose of attending this session?

b. Scheduling the Training Session in conjunction with the ERIC convention made it possible to eliminate extra travel, but it also required us to serve seven of them days from home, to your advantage, which advantage was this?

c. Was four days too short a period of time in which to learn the content of this session?

5. a. Were you allowed enough time in which to pursue activities of your own choosing?

b. Circle the word which best answers the question, "What is your reaction to the number of meetings per day?"

too few too many satisfactory

c. On how many evening meetings did you participate? 0 1 2 3

6. a. Were the individual lectures too long?

b. Were the lectures scheduled in an appropriate sequence?

7. Did you have sufficient opportunities to interact with other participants?

8. a. Were the instructors accessible and approachable so that you were able to obtain the individual attention that you desired?

b. Would it have been helpful to have had trained counselors available for individual help?

9. Did the attempts to evaluate your progress and activities during the session (test at this summit) interfere with your work?

10. In general, was the training project well organized?

Content and Presentation

11. a. Did the content of the lectures and readings presuppose far more previous training than you had?

b. Should less training in these areas or more have been presupposed?

12. a. To what extent was the content of the lectures and readings relevant to what you hoped to accomplish during this session?

b. Was the content what you expected it to be?

c. Was the content relevant to your work in music education?

13. a. Were the instructors stimulating and interesting?

b. Were the instructors enthusiastic in their presentations?

c. Were the instructors well prepared?

14. a. Were you disappointed in any way with the quality of presentations?

b. Were you disappointed in any way with the Tennessee Tiveducing Program as a whole?

Answer each of the following by checking the appropriate blank.

15. If you had it to do over again, would you apply for this Training Session which you have just completed? Yes___No___

16. If a Training Session such as this is held again, would you recommend to others like you that they attend? Yes___No___

17. Do you anticipate maintaining some sort of contact with at least one of the instructors of this session? Yes___No___

18. Do you feel that the MEMC/SEMC is making an important contribution to education by sponsoring sessions such as this one? Yes___No___

19. Is it likely that you will collaborate in research with someone else attending this session (other than those you already were likely to collaborate with)? Yes___No___

20. Do you feel that the staff has accomplished its objectives during this four-day training session? Yes___No___

Suggest any ways in which you believe this program might have been improved.